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Zachary C. Williams

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EXAMINER

CRAIG, DWIN M

ART UNIT

PAPER NUMBER

2123

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/802,624

Applicant(s)

WILLIAMS ET AL.

Examiner

Dwin M. Craig

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-26 have been presented for examination.

Specification

2. The disclosure is objected to because of the following informalities: On page 6 lines 18-19 the following sentence doesn't make sense, "*In particular it may be assumed that each operation is only represented in on one tree structure...*" it would appear that the word "on" does not need to be in the sentence.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-22 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

3.1 Claims 1-22 are directed to different nodes in a tree structure and their relationship to each other. This claimed subject matter lacks a practical application of a judicial exception (law of nature, abstract idea, naturally occurring article/phenomenon) since it fails to produce a useful concrete and tangible result.

Specifically, the claimed subject matter does not produce a tangible result because the claimed subject matter fails to produce a result that is limited to having real world value rather than a result that may be interpreted to be abstract in nature as, for example, a thought, a

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computation, or manipulated data. More specifically, the claimed subject matter provides for a *tree structure with nodes that represent cost*. This produced result remains in the abstract and, thus fails to achieve the required status of having real world value.

3.2 More specifically and in regards to independent claim 1, the current claimed limitations teach the following steps *using a first and a second tree structure to represent a first and second operation*, then *using a branch of the tree structure to represent dependencies* and then *determining if the third node represents the first node*. The current claim language fails to convey any of these method steps into the real world and further fails to disclose an output that would then provide conveyance of a useful result to the real world, thus the current claim language fails to provide for a tangible result. The current claim language merely teaches method steps to manipulate and then analyze a tree structure. Dependent claims 2-9 fails to remedy the deficiency of claim 1.

3.3 Regarding claim independent claim 10, again the current claim language merely teaches manipulation of nodes in a tree structure and analysis of the results of that manipulation, no language in the claim clearly discloses a means of conveying the manipulation of the tree structure to the real world. Dependent claim 11 fails to remedy the deficiency of claim 10.

3.4 Regarding claims 12-20 again the claim language teaches manipulation of a tree structure but fails to teach or suggest a method of conveying the results of manipulation of the tree structure to the real world. Dependent claims 13-20 fail to overcome the deficiencies of independent claim 12.

3.5 Regarding claims 21 and 22 please see the discussion of claims 10 and 11 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,696,885 to Hekmatpour.

4.1 Regarding independent claim 1, Hekmatpour teaches or makes obvious, *a method of analyzing the ownership costs of a complex system* (see Figure 10 and Col. 12 lines 10-13

“Assign a node cost (NC) to each node representing the relative cost (dollar, time, manpower, resources) or performing, testing, or verifying the conditions, tests, and actions described at the node...” see also Col. 10 lines 4-57) *having a plurality of operations associated with the system*, (see Col. 4 lines 38-54 which describes a *complex system*) *the method comprising: using a first and a second node of a tree structure* (Figure 3 item # 26 and Figure(s) 6-9) *to represent a first and a second operation associated with the system*; (Col. 4 lines 55-67 more specifically, “An uppermost level comprises behavioral knowledge level, a middle level comprises structural knowledge...” see also figure 7) *using a branch of the tree structure to represent a first dependency between the first operation and the second operation*; (Figure 7 teaches a dependency between the different *levels* using the lines, further leaf nodes are dependent upon parent nodes in tree structures, see also the discussion in Col. 16 lines 4-67 and Col. 17 lines 1-25 see also Col. 12 lines 1-5 more specifically “...the condition under which the branch is valid...”),

and determining whether a third node represents the first operation claim interpretation, the examiner is interpreting the claim language to mean that there is a check to see if the third node contains the solution to the problem, Hekmatpour teaches traversing a tree to the third level, where there will be a node, in order to find a solution to a problem (Col. 17 lines 15-25 and Figures 1a-1c).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have derived the specific technical details as disclosed in the claimed limitations set forth in view of the teachings of Hekmatpour. The suggestion for doing so would have been to provide for a method of passing on experience and expertise to new employees without the

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employees having to attend a standardized training course, this methodology provides for a low cost method of training new employees without having to burden existing employees for training as well as providing a self paced or *just in time* learning environment for greater efficiency and lower cost see Hekmatpour Col. 3 lines 45-67 and Col. 4 lines 1-5.

Therefore, it would have been obvious to use the teachings of Hekmatpour to obtain the invention as specified in claims 1-26.

4.2 Regarding claim 2, Hekmatpour teaches, *further comprising associating a cost with the first node, the cost to be further associated with the first operation* (Col. 18 lines 35-57 more specifically “Given node strength NS_{ij} and node cost NC_{ij} ” and see Col. 12 lines 10-13 “Assign a node cost (NC) to each node representing the relative cost (dollar, time, manpower, resources) or performing, testing, or verifying the conditions, tests, and actions described at the node...”).

4.3 Regarding claim 3, Hekmatpour substantially teaches or makes obvious, *determining a total cost associated with the first and the second operations including the cost associated with the first operation* (Col. 18 lines 35-57 more specifically “Given node strength NS_{ij} and node cost NC_{ij} ” and see Col. 12 lines 10-13 “Assign a node cost (NC) to each node representing the relative cost (dollar, time, manpower, resources) or performing, testing, or verifying the conditions, tests, and actions described at the node...”).

4.4 Regarding claim 4, Hekmatpour substantially teaches or makes obvious, *modifying the first node to represent a change of the first operation* (Col. 12 lines 17-59 more specifically, “Can the value of a node attribute change during diagnosis or is it fixed once assigned?” which substantially teaches modifying a *first* node to represent a change or the first operation).

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4.5 Regarding claim 5, Hekmatpour substantially teaches or suggests, *further comprising disabling modifications to the second node* (Col. 13 lines 51-64 more specifically “...the resultant tree is saved in memory...and processing terminates” which is the functional equivalent of disabling modifications).

4.6 Regarding claim 6, Hekmatpour substantially teaches or suggests, *further comprising undoing the modification to the first node and enabling a subsequent modification* (Col. 12 lines 17-59 more specifically, “Can the value of a node attribute change during diagnosis or is it fixed once assigned?” which substantially teaches modifying a *first* node to represent a change or the first operation).

4.7 Regarding claim 7, Hekmatpour substantially teaches or suggests *further comprising subsequently modifying the second node to reflect a change of the second operation* (Col. 12 lines 17-59 more specifically, “Can the value of a node attribute change during diagnosis or is it fixed once assigned?” which substantially teaches modifying a *second* node to represent a change or the second operation).

4.8 Regarding claim 8, Hekmatpour substantially teaches or suggests *modifying the first node further comprising modifying the first dependency* (Col. 13 lines 35-64 defining root nodes is the functional equivalent of *modifying*).

4.9 Regarding claim 9, Hekmatpour substantially teaches or suggests *further comprising determining whether a second branch branches from the first node, the first branch branching from the first node* (see Figure(s) 6-9 and Col. 12 lines 1-5 more specifically “...the condition under which the branch is valid...”).

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4.10 Regarding claim 10, see the rejection of claim 1 above which substantially teaches the claimed subject matter.

4.11 Regarding claim 11, Hekmatpour substantially teaches or suggests *further comprising determining whether a third node represents the first operation* (Figure 9 teaches a third node, see also, Col. 7 lines 1-3).

4.12 Regarding claim 12, Hekmatpour substantially teaches or suggests, *a cost model for a complex system to have a plurality of operations associated with the system*, (see Figure 10 and Col. 12 lines 10-13 “Assign a node cost (NC) to each node representing the relative cost (dollar, time, manpower, resources) or performing, testing, or verifying the conditions, tests, and actions described at the node...” see also Col. 10 lines 4-57) *the model comprising: a tree structure;*(Figure 7) *a first node representing a first operation associated with the system;* (Figure 9 item labeled N_0) *a second node representing a second operation associated with the system;* (see Figure 2b and Col. 4 lines 55-67 more specifically, “An uppermost level comprises behavioral knowledge level, a middle level comprises structural knowledge...” see also figure 7) *a branch branching from the first node representing a first dependency between the first and the second operations;*(Figure 1c and the descriptive text more specifically Col. 16 lines 20-40 and Figure 9) *and a function determining whether a third node represents the first operation.* (Figure 9 teaches a third node, see also, Col. 7 lines 1-3)

4.13 Regarding claim 13, Hekmatpour substantially teaches or suggests *further comprising a cost associated with the first node, the cost to be further associated with the first operation* (see Col. 12 lines 10-13 “Assign a node cost (NC) to each node representing the relative cost (dollar,

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time, manpower, resources) or performing, testing, or verifying the conditions, tests, and actions described at the node...”).

4.14 Regarding claim 14, Hekmatpour substantially teaches or suggests *a total cost associated with the first and the second operations including the cost associated with the first operation* (see Col. 12 lines 10-13 “Assign a node cost (NC) to each node representing the relative cost (dollar, time, manpower, resources) or performing, testing, or verifying the conditions, tests, and actions described at the node...”).

4.15 Regarding claim 15, Hekmatpour substantially teaches or suggests *wherein the first node may be modified to represent a change of the first operation* (Col. 12 lines 17-59 more specifically, “Can the value of a node attribute change during diagnosis or is it fixed once assigned?” which substantially teaches modifying a *second* node to represent a change or the second operation).

4.16 Regarding claim 16, Hekmatpour substantially teaches or suggests *further comprising a function to disable modifications to the second node if a modification has been made to the first node* (Col. 13 lines 51-64 more specifically “...the resultant tree is saved in memory...and processing terminates” which is the functional equivalent of disabling modifications).

4.17 Regarding claim 17, Hekmatpour substantially teaches or suggests *further comprising a function to undo the modification to the first node and to enable a subsequent modification* (Figure(s) 4 & 5 and Col. 6 lines 48-58 and Col. 13 lines 50-67 and Col 14 lines 22 the ability to define and edit the knowledge system suggests the ability to *undo* a modification).

4.18 Regarding claim 18, Hekmatpour substantially teaches or suggests *wherein the second node may be modified to represent a change in the second operation* (Figure(s) 4 & 5 and Col. 6

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lines 48-58 and Col. 13 lines 50-67 and Col 14 lines 22 the ability to define and change a node and there are *second* nodes see Figure(s) 6-9).

4.19 Regarding claim 19, Hekmatpour substantially teaches or suggests *the changing the first node further comprising modifying the first dependency* (Figures 8 & 9 clearly teach dependencies between the nodes).

4.20 Regarding claims 20, Hekmatpour substantially teaches or suggests *further comprising a function to determine whether a second branch branches from the first node, the first branch branching from the first node* (see Figure(s) 6-9 and Col. 12 lines 1-5 more specifically "...the condition under which the branch is valid...").

4.21 Regarding claim 21, see the rejection of claim 12 above.

4.22 Regarding claim 22, see the rejection of claim 12 above.

4.23 Regarding claim 23, the rejection of claim 12 above substantially teaches the claim with the exception of the following limitations: *a memory to store a tree structure and an output to output a result of the determination.*

Hekmatpour substantially teaches *a memory to store a tree structure* (Col. 34 lines 12-15 and Col. 5 lines 18-33 "having a memory means") *and an output to output a result of the determination* (Figure(s) 11 and Col. 7 lines 7-10).

4.24 Regarding claim 24, Hekmatpour substantially teaches, *wherein the processor to further determine whether a second branch branches from the first node, the first branch branching from the first node* (Figure(s) 1a-1c and 4-9 and the descriptive text).

4.25 Regarding claim 25, see the rejection of claim 24 above.

4.26 Regarding claim ²⁶~~25~~, see the rejection of claim 12 above.

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Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwin M. Craig whose telephone number is (571) 272-3710. The examiner can normally be reached on 10:00 - 6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul L. Rodriguez can be reached on (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dwin McTaggart Craig


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